

COST action EuroProofNet. WG3 Program Verification

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COST. COST action¹

- **COST** = COoperation in Science and Technology
- pan-European intergovernmental framework since 1971
- Goal: development of scientific and technological networks
- Website: <https://www.cost.eu/>

A **COST action** can:

- organize schools and workshops
- provide travel and conference/workshop grants (**deadline March 1st**) to anyone
 - from a participating country
 - who wants to contribute to the goals of the action
- A COST action is managed by a core group elected by the representatives of every participating country

¹Slide courtesy of Frédéric Blanqui



Goal of EuroProofNet²

Boost the interoperability and usability of proof systems

- Express new proof systems in the Dedukti logical framework
- Promote the output of checkable proofs from automated provers
- **Make program verification more effective and accessible**
- Gather proofs translated in Dedukti into a database
- Provide tools for searching large libraries of formal proofs
- Develop the use of machine learning techniques in proofs
- Develop a modular theory of type theories
- Develop natural or controlled languages in proof systems

²Slide courtesy of Frédéric Blanqui



Your Contribution³

- Keep in mind that the main goal of the action is **INTEROPERABILITY**
- Contribute to the EPN website (teams, tools, publications):
<https://europroofnet.github.io>
- Discuss on <https://epn.zulipchat.com/>
- Advertise your (virtual) meetings, lectures and seminars
- Advertise internship, grant and job opportunities
- Participate in the Action or WG activities, meetings and schools

³Slide courtesy of Frédéric Blanqui



WG3 - Program Verification

- Mădălina Eraşcu, West University of Timisoara, Romania. WG3 chair
- Alicia Villanueva, UPV Universitat Politècnica de València, Spain. WG3 vice-chair



About WG3

- About 160 members from 32 different countries
 - different perspectives and approaches to the verification problem

Goal:

- Make program verification more effective and accessible.
- WG3 - beyond the state-of-the-art
 - Verification approaches can envisage **new applications and integration of proof systems** to overcome challenging problems that combine features that are better expressed in different logics.
 - Scalability and usability of verification techniques can be improved thanks to the exploitation of **synergies among different verification tools**.
 - Make verification techniques more successful by **taking advantage of advances on interoperability** between automated and interactive theorem proving, the mathematical formalisation of program semantics, and type theory.



Goals of the WG3 Timisoara meeting

- Bring together members of the different communities.
- Create an excellent and inclusive network of researchers in Europe.
- **Discussions** to identify steps towards achieving the action's goals in particular **Deliverables D5 and D6**.
- **Talks** in order to **transfer knowledge** in terms of expertise.

Deliverables:

- **D5 (month 18)**: Comparison of the approaches used in the Software Verification competition SV-COMP.
- **D6 (month 24)**: Software prototype for the inference of program specifications as logical axioms.



Questions?

